

IN THE CLAIMS

Claim 1. (currently amended) A recording method for a recording medium, comprising the steps of:

recording main data onto a recording medium on which an identification part indicating a type of said recording medium is provided, so that said main data are readable as optical changes; and

embedding sub data at least into margin bits ~~a part~~ of said main data based on a format corresponding to said type of said recording medium and recording said sub data along with said main data.

Claim 2. (previously presented) The recording method for a recording medium as claimed in claim 1, wherein encryption processing is performed on text data of said main data that are then recorded and said sub data are data for decoding said encryption processing performed on said text data of said main data.

Claim 3. (previously presented) The recording method for a recording medium as claimed in claim 1, wherein said sub data is embedded based on a format corresponding to said type of said recording medium, at least a first format for a reproduction-

only-type recording medium and a second format for a recordable-type recording medium.

Claim 4. (previously presented) The recording method for a recording medium as claimed in claim 3, wherein modulation processing is performed on said main data that are then recorded onto said recording medium and said sub data are embedded into margin bits of said modulation-processed main data.

Claim 5. (previously presented) The recording method for a recording medium as claimed in claim 3, wherein modulation processing is performed on said main data that are then recorded onto said recording medium and said sub data are embedded into said main data so as to satisfy a connection condition due to said modulation processing performed on said main data.

Claim 6. (previously presented) The recording method for a recording medium as claimed in claim 4, wherein said sub data are embedded into a predetermined pattern portion of said modulated main data.

Claim 7. (previously presented) The recording method for a recording medium as claimed in claim 4, wherein said sub data are embedded in accordance with said modulation processing performed on said main data.

Claim 8. (previously presented) The recording method for a recording medium as claimed in claim 1, wherein said main data have a header portion and data indicating said type of said recording medium is recorded in said header portion.

Claim 9. (currently amended) A recording medium on which main data are recorded so that said main data are readable as optical changes and on which sub data are recorded along with said main data, said sub data being embedded in at least margin bits ~~a part of~~ said main data based on a format corresponding to a type of the recording medium and said recording medium having an identification part indicating said type of said recording medium.

Claim 10. (previously presented) The recording medium as claimed in claim 9, wherein encryption processing is performed on text data of said main data that are then recorded and said sub data are data for decoding said encryption processing performed on said text data of said main data.

Claim 11. (previously presented) The recording medium as claimed in claim 9, wherein said sub data are embedded based on a format corresponding to said type of said recording medium, at least a first format for a reproduction-only type recording

medium and a second format for a recordable type recording medium.

Claim 12. (previously presented) The recording medium as claimed in claim 11, wherein modulation processing is performed on said main data that are then recorded onto said recording medium and said sub data are embedded into margin bits of said modulation-processed main data.

Claim 13. (previously presented) The recording medium as claimed in claim 11, wherein modulation processing is performed on said main data that are then recorded onto said recording medium and said sub data are embedded into said main data so as to satisfy a connection condition due to said modulation processing performed on said main data.

Claim 14. (previously presented) The recording medium as claimed in claim 12, wherein said sub data is embedded into a predetermined pattern portion of said modulated main data.

Claim 15. (previously presented) The recording medium as claimed in claim 12, wherein said sub data are embedded in accordance with said modulation processing performed on said main data.

Claim 16. (previously presented) The recording medium as claimed in claim 9, wherein said main data have a header portion and data indicating said type of said recording medium are recorded in said header portion.

Claim 17. (currently amended) A recording method for a recording medium, comprising the steps of:

recording data onto a recording medium so that said data are readable as optical changes; and

embedding and recording sub data into margin bits of said data recorded in a predetermined recording area of said recording medium based on a format corresponding to a type of said recording medium.

Claim 18. (previously presented) The recording method for a recording medium as claimed in claim 17, wherein said recording medium has a first recording area in which said data are to be recorded and a second recording area that is provided at a position to be read prior to said first recording area and in which table-of-contents data are to be recorded; and said method further comprises the step of embedding said sub data into said data recorded in said second recording area.

Claim 19. (previously presented) The recording method for a recording medium as claimed in claim 18, wherein modulation

processing based on a predetermined modulation system is performed on said data to be recorded in said first recording area and said second recording area that are then recorded; and said sub data are embedded into margin bits of said data on which said modulation processing is performed.

Claim 20. (previously presented) The recording method for a recording medium as claimed in claim 19, wherein said margin bits are selected based on a format corresponding to said type of said recording medium.

Claim 21. (previously presented) The recording method for a recording medium as claimed in claim 18, wherein modulation processing is performed on said main data that then recorded onto said recording medium; and said sub data are embedded into said data so as to satisfy a connection condition due to said modulation processing.

Claim 22. (previously presented) The recording method for a recording medium as claimed in claim 18, wherein said sub data are embedded into a synchronizing signal portion in said second recording area.

Claim 23. (previously presented) The recording method for a recording medium as claimed in claim 18, wherein said sub data

are embedded into a sub code portion in said second recording area.

Claim 24. (previously presented) The recording method for a recording medium as claimed in claim 17, wherein encryption processing is performed on said data to be recorded onto said recording medium that are then recorded; and said sub data are data for decoding encryption processing performed on said data to be recorded onto said recording medium.

Claim 25. (currently amended) A recording method for a recording medium, comprising the step of:

identifying a type of a loaded recording medium;

selecting a data format for embedding sub data into data recorded on said loaded recording medium based on a result of said identification so that said data are readable as optical changes;

discriminating whether a recording area in which recording is to be performed is a recording area in which said sub data should be embedded; and

embedding and recording said sub data into margin bits of data to be recorded in a predetermined area of said recording medium based on said selected data format when it is determined that said recording is to be performed in said recording area in

which recording is to be performed based on a result of said discrimination.

Claim 26. (previously presented) The recording method for a recording medium as claimed in claim 25, wherein said recording medium has a first recording area in which said data are to be recorded and a second recording area that is provided at a position to be read out prior to said first recording area and in which table-of-contents data are to be recorded; and said method further comprises the step of embedding said sub data into said data recorded in said second recording area.

Claim 27. (previously presented) The recording method for a recording medium as claimed in claim 26, wherein modulation processing based on a predetermined modulation system is performed on said data to be recorded in said first recording area and said second recording area that are then recorded; and said sub data is embedded into margin bits of said data on which said modulation processing is performed.

Claim 28. (previously presented) The recording method for a recording medium as claimed in claim 27, wherein said margin bits are selected based on said result of said identification of said type of said recording medium.



Claim 29. (previously presented) The recording method for a recording medium as claimed in claim 27, wherein modulation processing is performed on said main data that are then recorded onto said recording medium; and said sub data are embedded into said data so as to satisfy a connection condition due to said modulation processing.

Claim 30. (previously presented) The recording method for a recording medium as claimed in claim 28, wherein margin bits in accordance with said predetermined modulation system are selected when said result of said discrimination indicates that said area in which said recording is to be performed is not a recording area in which said sub data should be embedded.

Claim 31. (previously presented) The recording method for a recording medium as claimed in claim 26, wherein said sub data are embedded into a synchronizing signal portion in said second recording area.

Claim 32. (previously presented) The recording method for a recording medium as claimed in claim 26, wherein said sub data are embedded into a sub code portion in said second recording area.

Claim 33. (previously presented) The recording method for a recording medium as claimed in claim 26, wherein encryption processing is performed on said data to be recorded in said first recording area that are then recorded; and said sub data are data for decoding encryption processing performed on said data to be recorded in said first recording area.

Claim 34. (previously presented) The recording method for a recording medium as claimed in claim 25, wherein said recording medium has an identification part indicating whether it is a reproduction-only recording medium or a recordable recording medium; and said method further comprises the step of identifying said type of said loaded recording medium based on said identification part of said recording medium.

Claim 35. (previously presented) The recording method for a recording medium as claimed in claim 34, wherein modulation processing based on a predetermined modulation system is performed on said data to be recorded in said first recording area and said second recording area that are then recorded; and said sub data are embedded into margin bits of said data on which said modulation processing is performed.

Claim 36. (previously presented) The recording method for a recording medium as claimed in claim 35, wherein said margin

bits are selected based on said result of said identification of said type of said recording medium.

Claim 37. (previously presented) The recording method for a recording medium as claimed in claim 35, wherein modulation processing is performed on said main data that are then recorded onto said recording medium; and said sub data are embedded into said data so as to satisfy a connection condition due to said modulation processing.

Claim 38. (previously presented) The recording method for a recording medium as claimed in claim 34, wherein whether said recording medium is one of a write-once recording medium and a rewritable recording medium is identified based on a reflectance of said recording medium; and said sub data are embedded by selecting said margin bits based on a result of said identification.

Claim 39. (previously presented) The recording method for a recording medium as claimed in claim 34, wherein modulation processing is performed on said main data that are then recorded onto said recording medium; and said sub data are embedded into said data so as to satisfy a connection condition due to said modulation processing.

Claim 40. (currently amended) A recording device for a recording medium, comprising:

an encoding processing unit for performing recording modulation processing on inputted data and processing to embed sub data into margin bits of said data based on a data format selected based on a type of a recording medium to be recorded; and

a head unit supplied with output data from said encoding unit and adapted for performing said recording on said recording medium.

Claim 41. (previously presented) The recording device for a recording medium as claimed in claim 40, further comprising an encryption processing unit for performing encryption processing on said inputted data and for supplying said data to said encoding unit.

Claim 42. (previously presented) The recording device for a recording medium as claimed in claim 41, wherein said encoding processing unit has a modulation processing unit for performing modulation processing on output data from said encryption processing unit and causes said modulation processing unit to embed data for canceling said encryption processing performed on said output data from said encryption processing unit as said sub data.

Claim 43. (previously presented) The recording device for a recording medium as claimed in claim 42, wherein said modulation processing unit embeds said sub data into margin bits of said data on which said modulation processing is performed.

Claim 44. (previously presented) The recording device for a recording medium as claimed in claim 43, wherein said modulation processing unit embeds said sub data by selecting said margin bits based on said type of said recording medium.

Claim 45. (previously presented) The recording device for a recording medium as claimed in claim 44, wherein said modulation processing unit selects said margin bits so as to satisfy a connection condition due to modulation processing performed on said output data from said encryption processing unit and embeds said sub data.

Claim 46. (previously presented) The recording device for a recording medium as claimed in claim 40, further comprising an identifying unit for identifying said type of a recording medium loaded on said device, wherein said encoding processing unit selects said data format and embeds said sub data into said data based on a result of identification by said identifying unit.

Claim 47. (previously presented) The recording device for a recording medium as claimed in claim 46, wherein said encoding processing unit has a modulation processing unit for performing modulation processing on said output data from said encryption processing unit; and causes said modulation processing unit to embed data for canceling encryption processing performed on said output data from said encryption processing unit as said sub data.

Claim 48. (previously presented) The recording device for a recording medium as claimed in claim 47, wherein said modulation processing unit embeds said sub data into margin bits of said data on which said modulation processing is performed.

Claim 49. (previously presented) The recording device for a recording medium as claimed in claim 48, wherein said modulation processing unit embeds said sub data by selecting said margin bits based on said type of said recording medium.

Claim 50. (previously presented) The recording device for a recording medium as claimed in claim 47, wherein said modulation processing unit embeds said sub data so as to satisfy a connection condition due to modulation processing performed on said output data from said encryption processing unit.

Claim 51. (currently amended) A recording device for a recording medium, comprising:

a head unit for recording data onto a recording medium so that said data are optically readable, the recording medium having a first recording area in which said data are to be recorded and a second recording area provided at a position to be read prior to said first recording area;

an encoding processing unit for performing recording modulation processing on inputted data and processing to embed sub data into margin bits of said data based on a data format selected based on a type of said recording medium; and

a control unit for controlling said encoding processing unit and said head unit so as to record said data to be recorded in said second recording area with said sub data embedded in said data.

Claim 52. (previously presented) The recording device for a recording medium as claimed in claim 51, wherein said control unit discriminates whether said recording area on said recording medium in which recording is to be performed is said second recording area and when a result of said discrimination indicates said second recording area said control unit controls said head unit to record said data with said sub data embedded into said second recording area.

Claim 53. (previously presented) The recording device for a recording medium as claimed in claim 52, wherein said control unit discriminates whether said recording area on said recording medium in which recording is to be performed is said second recording area and when said result of said discrimination indicates said second recording area said control unit controls said head unit to record onto said recording medium said data on which modulation processing is performed by said encoding processing unit.

Claim 54. (previously presented) The recording device for a recording medium as claimed in claim 51, further comprising an identifying unit for identifying said type of said recording medium loaded on said device, wherein said encoding processing unit selects said data format and embeds said sub data into said data based on a result of said identification by said identifying unit.

Claim 55. (previously presented) The recording device for a recording medium as claimed in claim 54, wherein said encoding processing unit has a modulation processing unit for performing modulation processing on output data from said encryption processing unit; and causes said modulation processing unit to embed data for canceling said encryption processing performed on



said output data from said encryption processing unit as said sub data.

Claim 56. (previously presented) The recording device for a recording medium as claimed in claim 55, wherein said modulation processing unit embeds said sub data into margin bits of said data on which said modulation processing is performed.

Claim 57. (previously presented) The recording device for a recording medium as claimed in claim 56, wherein said modulation processing unit embeds said sub data by selecting said margin bits based on said type of said recording medium.

Claim 58. (previously presented) The recording device for a recording medium as claimed in claim 55, wherein said modulation processing unit embeds said sub data so as to satisfy a connection condition due to modulation processing performed on the said output data from said encryption processing unit.

Claim 59. (Original) The recording device for a recording medium as claimed in claim 51, wherein said control unit embeds said sub data into a synchronizing signal portion in said second recording area.

Claim 60. (Original) The recording device for a recording medium as claimed in claim 51, wherein said control unit embeds said sub data into a sub code portion in said second recording area.

Claim 61. (currently amended) A reproducing method for a recording medium, comprising the step of:

detecting an identification part indicating a type of a recording medium provided on a recording medium on which data are recorded so that said data is readable as optical changes and on which data indicating said type and having sub data embedded in at least margin bits ~~a part of~~ said data based on a data format corresponding to said type of the recording medium are recorded;

discriminating said type of said recording medium based on said data indicating said type read from said recording medium;

detecting whether a result of said detection of said identification part and a result of said discrimination are coincident; and

extracting and decoding said sub data from said data read out from said recording medium when said result of said detection and said result of said discrimination are coincident.

Claim 62. (previously presented) The reproducing method as claimed in claim 61, wherein when said result of said detection and said result of said discrimination are coincident decoding processing corresponding to said type of said recording medium based on said result of the detection of said identification part and the result of said discrimination is performed on said extracted sub data.

Claim 63. (previously presented) The reproducing method for a recording medium as claimed in claim 61, wherein encryption processing has been performed on said data to be recorded on said recording medium and said encryption processing performed on said data read from said recording medium is decrypted based on said decoded sub data.

Claim 64. (previously presented) The reproducing method for a recording medium as claimed in claim 63, wherein when the encryption processing performed on said data read from said recording medium could not be decrypted by using said decoded sub data a reproducing operation of said recording medium is stopped.

Claim 65. (previously presented) The reproducing method for a recording medium as claimed in claim 64, further comprising the step of making a warning display.

Claim 66. (previously presented) The reproducing method for a recording medium as claimed in claim 61, wherein when said result of said detection of said identification part and said result of said discrimination are not coincident a reproducing operation of said recording medium is stopped.

Claim 67. (previously presented) The reproducing method for a recording medium as claimed in claim 66, further comprising the step of making a warning display.

Claim 68. (currently amended) A recording method for a recording medium, comprising the step of:

recording data onto a recording medium so that said data are readable as optical changes; and

embedding and recording sub data into margin bits of data recorded in a predetermined recording area of said recording medium based on a format corresponding to a type of said data to be recorded on said recording medium.

Claim 69. (previously presented) The recording method for a recording medium as claimed in claim 68, wherein said sub data varies between when said data to be recorded on said recording medium are original data and when said data to be recorded on said recording medium are non-original data.

Claim 70. (previously presented) The recording method for a recording medium as claimed in claim 68, wherein said sub data have a data pattern that varies between when said data to be recorded on said recording medium are original data and when said data to be recorded on said recording medium are non-original data.

Claim 71. (previously presented) The recording method for a recording medium as claimed in claim 68, wherein after predetermined modulation processing is performed on said data to be recorded on said recording medium said data are recorded onto said recording medium and said sub data are embedded into margin bits of said data on which said predetermined modulation processing is performed.

Claim 72. (previously presented) The recording method for a recording medium as claimed in claim 71, wherein when said area on said recording medium in which recording is to be carried out is not said predetermined recording area in which said sub data should be embedded margin bits in accordance with said predetermined modulation system are selected.

Claim 73. (previously presented) The recording method for a recording medium as claimed in claim 68, wherein said

recording medium has a first recording area in which said data is to be recorded and a second recording area that is provided at a position to be read prior to said first recording area and in which table-of-contents data are to be recorded; and said method further comprises the step of embedding said sub data into said data recorded in said second recording area.

Claim 74. (previously presented) The recording method for a recording medium as claimed in claim 73, wherein modulation processing based on a predetermined modulation system is performed on said data to be recorded in said first recording area and said second recording area that are then recorded; and said sub data are embedded into margin bits of said data on which said modulation processing is performed.

Claim 75. (previously presented) The recording method for a recording medium as claimed in claim 74, wherein said margin bits are selected based on a format corresponding to said type of said data to be recorded on said recording medium.

Claim 76. (previously presented) The recording method for a recording medium as claimed in claim 73, wherein modulation processing is performed on said main data that are is then recorded onto said recording medium; and said sub data are

embedded into said data so as to satisfy a connection condition due to said modulation processing.

Claim 77. (previously presented) The recording method for a recording medium as claimed in claim 74, wherein said sub data are embedded into a synchronizing signal portion in said second recording area.

Claim 78. (previously presented) The recording method for a recording medium as claimed in claim 74, wherein said sub data are embedded into a sub code portion in said second recording area.

Claim 79. (previously presented) The recording method for a recording medium as claimed in claim 68, wherein encryption processing is performed on said data to be recorded onto said recording medium that are then recorded; and said sub data are data for decoding encryption processing performed on said data to be recorded onto said recording medium.

Claim 80. (previously presented) The recording method for a recording medium as claimed in claim 68, further comprising the steps of:

discriminating whether said data to be recorded on said recording medium are one of original data and non-original

data; selecting a data format based on a result of said discrimination; and embedding said sub data based on said selected data format.

Claim 81. (currently amended) A reproducing method for a recording medium, comprising the steps of:

discriminating a type of data recorded on a recording medium based on data indicating said type of data read from said recording medium on which said data is recorded so that said data are readable as optical changes and on which data are recorded having sub data embedded in at least margin bits ~~a part~~ of said data based on a data format corresponding to said type of the data recorded on said recording medium and indicating said type of said recorded data; and

decoding said sub data from said data read from said recording medium based on a result of said discrimination.

Claim 82. (previously presented) The reproducing method for a recording medium as claimed in claim 81, wherein encryption processing has been performed on said data to be recorded on said recording medium and said encryption processing performed on said data read from said recording medium is decrypted based on said decoded sub data.



Claim 83. (previously presented) The reproducing method for a recording medium as claimed in claim 82, wherein when said encryption processing performed on said data read out from said recording medium could not be decrypted by using said decoded sub data a reproducing operation of recording medium is stopped.

Claim 84. (previously presented) The reproducing method for a recording medium as claimed in claim 82, further comprising the step of making a warning display.

Claim 85. (previously presented) The reproducing method for a recording medium as claimed in claim 81, wherein when said sub data could be decoded a reproducing operation of said recording medium is stopped.

Claim 86. (previously presented) The reproducing method for a recording medium as claimed in claim 85, further comprising the step of making a warning display.